

July 19, 1993

Mayor Joseph Vas  
City of Perth Amboy  
260 High Street  
Perth Amboy, NJ 08861

Re: 206001 City of Perth Amboy  
Runyon Watershed - Remedial Investigation  
Reports by CPS/Madison

Dear Mayor Vas:

Our office has received and conducted a preliminary review of two (2) Remedial Investigation (RI) reports prepared on behalf of CPS Chemical and Madison Industries. These reports provide the results of the first phase field investigations performed in late 1992/early 1993 on the Industries' property and the City's Runyon Watershed. The purpose of the RI is to investigate the extent of the soil contamination and to collect data that is necessary for remedial planning and design. Upon acceptance of the RI by NJDEPE, Feasibility Studies (FS) will be performed to determine appropriate remedial methods and technologies. However, prior to this step, additional RI field work has been recommended by both Converse and Dan Raviv Associates to further delineate the contaminated areas on the CPS chemical and Madison Industries sites.

The NJDEPE determined that adequate evaluation of the ground water had previously been conducted. Killam and Maraziti Falcon and Gregory have opposed that decision.

The Results of Remedial Investigation report, prepared by Dan Raviv Associates for CPS Chemical, dated June 18, 1993, provides an investigation limited to organic contamination on the CPS site. The field investigation performed by Dan Raviv detected a possible continuing source discharge underlying the CPS site. The concentrations of volatile organic compounds at monitoring well WE-2 appear to be the highest recorded at the site, with 13,000 ppb chlorobenzene detected.

The Draft Remedial Investigation Report, prepared by Converse Consultants East for Madison Industries, dated June 25, 1993, provides a similar investigation, but concerns only metal (inorganic) contamination of area surface waters and soils. The metals contamination of groundwater and Perth Amboy Supply Wells was not addressed in this RI.

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CPS Results of Remedial Investigation - Dan Raviv Associates

As a result of the CPS RI, a potential continuing source discharge has been tentatively identified on CPS' property. Samples collected at CPS monitoring well WE-2 were found to contain among the highest levels of volatile organic contamination detected at the site. The analyses of samples collected from WE-2 are provided in the following table:

VOC	Concentration (ppb)	
	December, 1992	February, 1993
Acetone	94	ND
Benzene	1,400	890
Chlorobenzene	13,000	8,200
1,2 Dichlorobenzene	5,400	6,000
1,4 Dichlorobenzene	3,000	3,800
1,2 Dichloroethane	3,100	2,800
t - 1,2 Dichloroethene	3,300	1,600
Ethylbenzene	1,900	1,400
Methylene Chloride	21,000	10,000
1,1,2,2 - Tetrachloroethane	ND	450
Toluene	9,700	11,000
TCE	150	ND
Xylenes (Total)	<u>9,300</u>	<u>8,100</u>
Total VOC	71,344	54,240

WE-2 has not been a regularly sampled component of the Performance Monitoring Program and this is the first analysis that we have been provided. The monitoring well is located adjacent to CPS Tank Farm No. 5 near the southwestern end of CPS' property, in close proximity to Madison's property. It is interesting to note that nearby monitoring well WCC-5S, located about fifty (50) feet east of WE-2, contained considerably fewer types of VOCS (4 vs. 13) and contained a total VOC concentration of 67.6 ppb. The monitoring well WCC-6S located about two hundred (200) feet north and hydraulically upgradient of WE-2, contained much lower levels of organic contamination. Dan Raviv has acknowledged the significance of the detection of VOCs at WE-2. In its summation, Raviv states "Based upon the upgradient and downgradient distribution of VOCs, a VOC source potentially affecting ground water may exist beneath the CPS site."

Dan Raviv has also identified that an upgradient source may be responsible for VOC contamination of the CPS site. The analysis of samples collected at WCC-1M by Wehran Engineering in December, 1992 for the Performance Monitoring Program detected several VOCs, including 660 ppb 1,2 Dichloroethane, but no chlorobenzene. Attempts have been made by CPS to link the Evor Phillips site to the contamination at CPS. The NJDEPE is reviewing this possibility. However, it has been conclusively demonstrated that CPS has directly contributed to the pollution at the Runyon Watershed. Dan Raviv's claim that chlorobenzene may have been contributed by an upgradient source is not well supported by actual data, as chlorobenzene has not been detected at WCC-1, the upgradient well, since February, 1991. Further, the recent water quality analysis of monitoring well WE-2 has been interpreted by Dan Raviv to indicate a "VOC Source" in CPS tank farm No. 5 that contains approximately 10,000 ppb pf chlorobenzene.

The CPS RI included a soil gas survey at the CPS site. The soil gas survey measures VOCs present within the pores of the soil. Significant levels of VOCs were detected by the soil gas survey, which may be indicative of surface chemical spills. However, Dan Raviv has concluded that there is no threat to human health or the environment from the soil gas due to current conditions and land use at the site.

Dan Raviv recommends the installation of additional monitoring wells to determine if a continuing source exists at the CPS site. We agree that the discovery of VOCs at such magnitude warrants additional on-site investigation at CPS.

#### Madison Draft Remedial Investigation Report - Converse Consultants

The Madison document begins with a brief background of events which lead to the preparation of the RI. Previous actions and positions taken by the City of Perth Amboy are criticized, and these actions are blamed for delaying the remedial program and exacerbating the spread of contamination. These accusations and charges were the subject of considerable testimony before Judge Hamlin, and these continue to be raised periodically by both CPS and Madison. It is our opinion that this is inappropriate as the RI is supposed to provide conclusions based upon hard scientific data obtained during the field investigation. The NJDEPE has rebuked Madison Industries in the past for using the Performance Monitoring Program Reports as a forum for criticizing the City of Perth Amboy.

A very important aspect of the RI and future FS is the applicable or relevant or appropriate requirements (ARAR). These would be the applicable soil and groundwater cleanup standards assigned to the Madison site and to the Runyon Watershed. Converse has assumed the

Non-Residential Surface Soil Standard would be the cleanup standard for the Madison site for shallow soils. Converse also believes site specific standards would be determined based upon the toxicity and potential mobility of the contaminants for deeper soils. The NJDEPE has recently issued cleanup standards that are less stringent for industrial areas, where human contact and exposure are less likely. The City's use of the adjacent Runyon Watershed as a drinking water source should preclude the use of these less stringent standards being applied to Madison, but this has yet to be decided by NJDEPE. As a point of comparison the NJDEPE has waived the Class II-A (Potable Use) Groundwater Standards in the Draft Emergency Discharge Permits issued to CPS and Madison for the contaminated portions of the Runyon Watershed to allow the Industries to recharge treated recovery waters.

The recently enacted Surface Water Quality Standards (N.J.A.C. 7:9-4) are not mentioned or discussed by this RI. These standards are the most stringent, and are applicable to the surface water bodies at the Runyon Watershed.

The following table provides the two (2) soil standards, the surface water standards, and the Class II-A groundwater standard for the four (4) metals most prevalent at the site:

	Soil (ppm)		Groundwater (ppm)	Surfacewater (ppm)
	Residential	Non-Residential	Class II-A	
Zinc	1500	1500	5	0.027 - 0.145
Lead	100	600	0.01	0.05
Cadmium	1	100	4	0.01
Copper	600	600	-	-

The approach of the Madison RI was to determine the location and extent of the four (4) most prevalent metals: lead, zinc, cadmium and copper in the subsurface layer above the water table. At many of the sampling points, three (3) samples at varying depths, typically shallow, intermediate and deep were collected for an approximately ten (10) feet thick soil layer above the water table. Groundwater sampling and analysis was not included within the scope of this RI, but in our opinion should be performed. Metals have impacted the groundwater system including Perth Amboy Supply Well No. 5.

Soil sampling and analysis were performed at ten (10) areas of concern. Six (6) of these areas include reported tank failures and leaks, and raw material piles on Madison's property. No distinction is made concerning areas of the property utilized by each Madison company,

which are known to include Madison Industries, Old Bridge Chemical, Madison Chemical and Solution Transport. The remaining areas include Pricketts Brook, Pricketts Pond, Tennent Pond and stressed vegetation areas.

Of serious concern is the high metals detected within the surface water. Zinc was detected at 6.76 mg/l in Pricketts Brook, and 38.2 mg/l in Pricketts Pond. These results confirm that discharges are continuing, whether it be by groundwater recharge of the surface water bodies, or direct or indirect (i.e.: stormwater runoff) discharges from the Madison Industries site. Killam Associates collected split-samples during the Madison RI field investigation at Runyon in December, 1992. We presented our findings to the City and NJDEPE by letter to Martin Langenohl, dated February 2, 1993. The concentrations reported by Converse Consultants are in agreement with our previous analysis.

The removal of metal contaminated soil from Pricketts Brook and Pricketts Pond was a significant component of past Court Orders, but was never implemented. It is our opinion, based upon this and previous sampling data as well as visual inspection, that these surface water bodies are continuing to convey contamination further into the Runyon Watershed and off site to the South River and Raritan Bay. These issues must be addressed in any remedial plan for the Runyon Watershed.

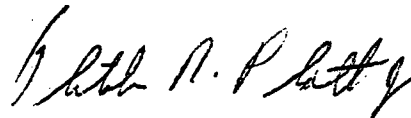
The investigation within the Madison Industries site, proper, displays significant contamination for all of the areas investigated. This involves the operations of all companies on the Madison site. As a component of the Madison RI, a Phase II Investigation has been proposed. Additional samples are to be collected in the specific areas that were found to have significant levels of contamination. The Phase II Sampling plan will need to be approved by NJDEPE prior to implementation. Converse proposes to take additional samples on City property.

We have concern over the loose interpretation of the term "background concentrations" discussed in both the Madison RI and CPS RI. Both reports collected samples on the northern portions of the Industries' sites, as these areas are hydraulically upgradient of known contamination areas. In both reports, high levels of contamination are detected. The Madison RI states "At present the cause of elevated metals detected in these samples is unknown." The CPS RI identifies the adjacent Evor Phillips Superfund Site as a possible source for this contamination. Both CPS and Madison have attempted to claim that the contamination at the sites are either indigenous to the area or from other sources of contamination. Efforts to identify contaminants within these industrial areas as indicative of natural background levels has also been attempted by both Industries in the past.

We will continue to monitor the progress of the continuing RI Studies and report our findings to the City. Should you have any questions or wish to discuss these issues, please do not hesitate to contact us.

Very truly yours,

KILLAM ASSOCIATES



Fletcher N. Platt, Jr., P.E.

FNP:cje

cc: Dan Pejakovich  
James Gregory

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